serial No. 09/029,855, filed May 28, 1998, and now U.S. patent No. 6,103,363, which is a 371 of PCT/FR96/01421, filed September 13, 1996.--

REMARKS

Claims 25-45 remain pending. Favorable reconsideration is respectfully requested.

The rejection of Claims 25, 27, 29-30, 34-35, 39, and 44-45 under 35 U.S.C. §102(e) over Yamada (U.S. patent No. 5,897,958) is respectfully traversed. Yamada is not available as prior art against the present application.

The Yamada patent issued from an application that was filed on October 23, 1996. Therefore, the Yamada patent is available as a reference under 35 U.S.C. §102(e) as of that date.

In contrast, the effective filing date of the present application is September 13, 1996, i.e., the filing date of international application No. PCT/FR96/01421. Since September 13, 1996 is prior to October 23, 1996, Yamada is not available as prior art under 35 U.S.C. §102(e) against the present application. Accordingly, withdrawal of this ground of rejection is respectfully requested.

The rejection of Claims 25-27, 29-30, and 34-36 under 35 U.S.C. §102(e) over Vandiest (U.S. patent No. 5,721,054) is respectfully traversed.

An important feature of the claimed substrate is that it has a coating comprising at least partially crystalline titanium oxide and where the coating has photocatalytic properties or hydrophilic and/or photocatalytic properties.

Vandiest describes a glazing panel produced by pyrolytic coating of a substrate (see the Abstract). The coating contains an absorbent layer comprising at least one oxide selected

from chromium, cobalt, and iron. The coating also contains a non-absorbent layer which comprises a material having a refractive index within the range of 1.4 to 3.0 (see the Abstract). The purpose of the coating is to have low solar factor and a high purity of reflected color (see column 2, lines 13-17). Vandiest fails to describe that the coating described therein is photocatalytic or hydrophilic. Accordingly, this reference fails to describe the claimed coated substrate. Withdrawal of this ground of rejection is respectfully requested.

The rejection of Claims 25-27, 29-30, and 34-35, 39, and 44-45 under 35 U.S.C. §102(e) over Teowee (U.S. patent No. 5,604,626) is respectfully traversed.

An important feature of the claimed substrate is that it has a coating comprising at least partially crystalline titanium oxide and where the coating has photocatalytic properties or hydrophilic and/or photocatalytic properties.

Teowee describes a photochromic device which allows a user to leave the device in a high transmissive state even when exposed to a source of radiation (see the Abstract). The device contains a radiation sensitive electrode 30 (see columns 7 and 8). Teowee fails to describe that the coating described therein is photocatalytic or hydrophilic. Accordingly, this reference fails to describe the claimed coated substrate. Withdrawal of this ground of rejection is respectfully requested.

The rejection of Claims 25-30 under 35 U.S.C. §103(a) over Kato (U.S. patent No. 6,284,314) is respectfully traversed.

The thickness of the coatings described by Kato are much greater than 50 nm. In the Examples of that reference, the coating thickness is 400 nm (Example 1), 500 nm (Example 2), 300 nm (Example 3), 400 nm (Example 4), 600 nm (Example 5), 400 nm (Example 6),

800 nm (Example 7), 600 nm (Example 8), 0.5 μm (Example 9), 0.4 μm (Example 10), 0.3 μm (Example 11), 0.5 μm (Example 12), 0.4 μm (Example 13), and 0.8 μm (Example 14). Thus, the thinnest coating described in the reference is 300 nm. In describing the procedure for preparing the coating, Kato states:

> it is desirable to produce a multilayer film by repeating a procedure which comprises depositing thinly and uniformly the ceramic sol...on a substrate...thereby forming a thin film of the solution on the substrate.... As a result, a sturdy porous ceramic thin film excellent in durability can be obtained. [Column 3, lines 33-42.]

In addition, Kato is completely silent regarding the size of titanium oxide crystallites. The reference also fails to describe the contact angle or the root mean square (RMS) rugosity of the coating. Kato also fails to explicitly disclose a layer which functions as a barrier to alkali metals originating from the substrate.

Claim 25 specifies, *inter alia*, that the coating has a thickness between 5 and 50 nm and the crystallized titanium oxide is in the form of crystallites with an average size of between 60 and 100 nm. The thinnest film described in the reference is 300 nm. There is no suggestion in Kato to produce a coating having a thickness which is 5 to 50 nm as claimed. Kato specifically directs one to prepare a coating using a multiple dipping technique, which would not suggest a coating that was only 1/6 the thickness of the thinnest coating described in the reference. Moreover, Kato fails to suggest that the titanium crystallites have an average size of between 60 and 100 nm, since the reference fails to even mention titanium crystallites at all. Accordingly, Kato fails to suggest the coated substrate recited in Claim 25.

Claim 26 recites, *inter alia*, (1) a thin layer a thin layer forming a barrier to alkali metals originating from the substrate, which is located between the substrate and the coating, and (2) that the crystallized titanium oxide is in the form of crystallites with an average size of between 60 and 100 nm. Kato does not identify a layer which functions as a barrier to alkali metals originating from the substrate, nor does the reference suggest that such a component would be desirable. Kato fails to suggest that the titanium crystallites have an average size of between 60 and 100 nm, since the reference fails to even mention titanium crystallites at all. Accordingly, Kato fails to suggest the coated substrate recited in Claim 26.

Claim 27 specifies, *inter alia*, (1) that the coating has contact angle with water below 5° after exposure to luminous rays and (2) that the crystallized titanium oxide is in the form of crystallites with an average size of between 60 and 100 nm. Kato is completely silent with respect to the contact angle of the coating and, therefore, fails to suggest a coating having a value below 5° as claimed. In addition, Kato fails to suggest that the titanium crystallites have an average size of between 60 and 100 nm, since the reference fails to even mention titanium crystallites at all. Accordingly, Kato fails to suggest the coated substrate recited in Claim 27.

Claim 28 *inter alia*, (1) that the coating has an RMS rugosity between 2 and 20 nm and (2) that the crystallized titanium oxide is in the form of crystallites with an average size of between 60 and 100 nm. Kato is completely silent with respect to the RMS rugosity of the coating and, therefore, fails to suggest a coating having a value between 2 and 20 nm. In addition, Kato fails to suggest that the titanium crystallites have an average size of between 60 and 100 nm, since the reference fails to even mention titanium crystallites at all. Accordingly, Kato fails to suggest the coated substrate recited in Claim 28.

Claim 29 specifies, *inter alia*, that the coating has a thickness between 10 and 80 nm and the crystallized titanium oxide is in the form of crystallites with an average size of between 60 and 100 nm. The thinnest film described in the reference is 300 nm. There is no suggestion in Kato to produce a coating having a thickness which is 5 to 50 nm as claimed. Kato specifically directs one to prepare a coating using a multiple dipping technique, which would not suggest a coating that was only about 1/4 the thickness of the thinnest coating described in the reference. Accordingly, Kato fails to suggest the coated substrate recited in Claim 29.

Claim 30 specifies, *inter alia*, that the coating has a thickness between 20 and 50 nm and the crystallized titanium oxide is in the form of crystallites with an average size of between 60 and 100 nm. The thinnest film described in the reference is 300 nm. There is no suggestion in Kato to produce a coating having a thickness which is 5 to 50 nm as claimed. Kato specifically directs one to prepare a coating using a multiple dipping technique, which would not suggest a coating that was only 1/6 the thickness of the thinnest coating described in the reference. Accordingly, Kato fails to suggest the coated substrate recited in Claim 30.

The rejection of Claims 25-30 under 35 U.S.C. §103(a) over Kato in view of Yamada is respectfully traversed. Yamada is not available as prior art against the present application.

The Yamada patent issued from an application that was filed on October 23, 1996. Therefore, the Yamada patent is available as a reference under 35 U.S.C. §102(e) as of that date.

In contrast, the effective filing date of the present application is September 13, 1996, i.e., the filing date of international application No. PCT/FR96/01421. Since September 13, 1996 is prior to October 23, 1996, Yamada is not available as prior art under 35 U.S.C. §102(e) against the present application. Therefore, the rejection based on Kato in view of Yamada is unsustainable. Accordingly, withdrawal of this ground of rejection is respectfully requested.

The rejection of Claim 39 under 35 U.S.C. §103(a) over Vandiest is respectfully traversed.

Claim 39 recites a windshield wherein at least the face of said windshield turned toward the inside of the passenger compartment is provided with a coating having hydrophilic and/or photocatalytic properties and comprising titanium oxide at least partly crystallized in the anatase form.

As discussed above, the purpose of the coating described in Vandist is to have low solar factor and a high purity of reflected color (see column 2, lines 13-17 of the reference). Vandiest fails to describe that the coating described therein is photocatalytic or hydrophilic. In addition, as recognized by the Examiner, the glazing described by Vandiest is to be used for architectural buildings and not as a windshield. In view of these differences, the

reference fails to suggest the claimed windshield. Accordingly, withdrawal of these grounds of rejection is respectfully requested.

The rejection of Claim 38 under 35 U.S.C. §103(a) over Yamada in view of any one of Ito (U.S. patent No. 4,664,934), Lynam (U.S. patent No. 5,076,673), or Weppner (U.S. patent No. 5,202,788) is respectfully traversed. Yamada is not available as prior art against the present application.

The Yamada patent issued from an application that was filed on October 23, 1996. Therefore, the Yamada patent is available as a reference under 35 U.S.C. §102(e) as of that date.

In contrast, the effective filing date of the present application is September 13, 1996, i.e., the filing date of international application No. PCT/FR96/01421. Since September 13, 1996 is prior to October 23, 1996, Yamada is not available as prior art under 35 U.S.C. §102(e) against the present application. Accordingly, withdrawal of this ground of rejection is respectfully requested.

The rejection of Claims 25-28 under 35 U.S.C. §112, first paragraph, is respectfully traversed.

The Examiner cites the specific crystallite size produced in one of the Examples at page 24 of the specification and argues that producing crystallites with an average size of between 60 and 100 nm is not described. See page 2 of the Official Action dated December 4, 2002. However, the present specification provides a detailed description for producing the coating on the substrate and includes a description of crystallites having the claimed range. See pages 3-4 of the present specification. Accordingly, the claims are enabled and withdrawal of this ground of rejection is respectfully requested.

The specification has been amended to insert the continuing application data requested by the Examiner.

Applicants submit that the application is in condition for allowance. Early notice to this effect is earnestly solicited.

Respectfully submitted,

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Serial No: 09/923,353
Amendment Filed on:
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IN THE SPECIFICATION

Please amend the specification as follows.

Page 1, between the Title and line 3, please insert:

--CONTINUING APPLICATION INFORMATION

This application is a continuation of U.S. application serial No. 09/615,910, filed July 13, 2000, and now U.S. patent No. 6,326,079, which is a continuation of U.S. application serial No. 09/029,855, filed May 28, 1998, and now U.S. patent No. 6,103,363, which is a 371 of PCT/FR96/01421, filed September 13, 1996.--